

Review of qualifications for 14 to 19-years-olds in Wales

A response to the Welsh Government on behalf of the Association for Science Education, the Institute of Physics, the Royal Society of Chemistry and the Society of Biology

1st September 2012

The Institute of Physics, the Royal Society of Chemistry and the Society of Biology are membership organisations that represent the scientific disciplines in their names. The Association for Science Education is the largest subject association for education in the UK, and supports those working in science education. The four organisations come together (along with the Royal Society) as SCORE to discuss and make representations on policy matters. We welcome the opportunity to respond to the consultation on qualifications in Wales.

Association for Science Education

The Association for Science Education (ASE) is the largest subject association for education in the UK. Members include teachers, technicians and others involved in science education. The Association plays a significant role in promoting excellence in teaching and learning of science in schools and colleges. Working closely with the science professional bodies, industry and business, ASE provides a UK-wide network bringing together individuals and organisations to share ideas and tackle challenges in science teaching, develop resources and foster high quality continuing professional development.

The Institute of Physics (IOP) is a leading scientific society promoting physics and bringing physicists together for the benefit of all. It has a worldwide membership of around 40 000 comprising physicists from all sectors, as well as those with an interest in physics. It works to advance physics research, application and education; and engages with policy makers and the public to develop awareness and understanding of physics. Its publishing company, IOP Publishing, is a world leader in professional scientific communications. The Institute of Physics in Wales is part of the Institute of Physics and has over 1000 members. The IOP also has a National Officer for Wales.

The Royal Society of Chemistry is the largest organisation in Europe for advancing the chemical sciences. Supported by a worldwide network of members and an international publishing business, activities span education, conferences, science policy and the promotion of chemistry to the public. The RSC is committed to supporting the teaching of chemistry within the primary, secondary and post-16 phases. It produces a number of teaching resources to enhance the teaching of the chemical sciences, including the bimonthly magazine *Education in Chemistry*.

The Society of Biology is a single unified voice for biology: advising Government and influencing policy; advancing education and professional development; supporting its members, and engaging and encouraging public interest in the life sciences. Its members include practising scientists, students at all levels, professionals in academia, industry and education, and non-professionals with an interest in biology. With an effective membership of over 80,000, the Society of Biology is

uniquely placed to represent the wider bioscience community and serve the public interest. The Society of Biology has an active regional branch network including a Welsh Branch.

SCORE is chaired by Professor Graham Hutchings FRS. It was established in 2006 to bring organisations together to tackle long term policy issues in science education. These organisations believe that the key to maximising the impact of their efforts, especially their influence on Governments, lies in a greater degree of collaboration. The current members of SCORE are the Association for Science Education, the Institute of Physics, the Royal Society, the Royal Society of Chemistry and the Society of Biology.

A 2.1 Vision and principles

1. We broadly agree with the principles and strongly agree that learners should be provided with “qualifications that are relevant, valued and internationally recognised”. Other principles we would include are:

- set and maintain standards;
- produce fair and effective assessment tools
- engender high quality teaching and learning;
- authentically represent the subject being assessed;
- encourage and allow for progression;
- support innovation;
- ensure comparability between subjects;
- offer real choice and quality.

See section 7.2 for more detail.

2. The intention that there should, over time, be more scope for people to take qualifications when they are ready rather than at the end of a stage warrants further investigation and is therefore given too much weight if it is one of the guiding principles.

A 2.2 Simple system based on coherent programmes of learning

3. Qualifications should only be on offer if they enable progression in that subject. There should be clear progression options between individual qualifications and these should also allow for movement between levels and between vocations.

4. There are 452 approved GCSE qualifications, and 86 of these include science in some way. However, not all of these science-related qualifications allow for progression to further study and ultimately employment in the science sector, therefore we recommend that there is a clear distinction between those science-related qualifications which have a clear progression route and those that don't.

5. Qualifications should be developed for a specific purpose and should be recognised and valued for what they represent. There should be no attempt to develop equivalence between qualifications that have been designed for different purposes. GCSEs, BTEC and Diplomas are not equivalent and nor should they try to be. Any such equivalencies are likely to drive down standards and the integrity of qualifications.

6. We strongly agree that “rather than training for a specific job at school or college they [young people] will be better served by gaining strong core and transferable skills, a broad knowledge and understanding and an ability to learn and develop.”

7. We caution against setting up a market in exams based on competition for numbers. This has been shown to drive down both standards and the quality of assessments (see section B 7.2).

A2.3 Relevant, valued and internationally recognised qualifications

8. Care needs to be taken in making any changes that might disadvantage Welsh students hoping to get jobs or go to University elsewhere in the UK or Europe. It would be difficult to initiate, from scratch, a new qualification that is going to be internationally recognised and valued by higher education. A-levels are an internationally-recognised brand and any new level 3 qualification would inevitably take time to establish itself and to gain recognition therefore we caution against wholesale reform simply for the sake of it.
9. There is also a question of whether schools would be able to use qualifications from awarding organisations (AOs) based in England or elsewhere. If so, there is a risk of establishing a split system of qualifications at level 3 which will be confusing for the learner when choosing their qualifications; teachers when developing their teaching schedule and advising pupils on choices post 16 and 18; and Higher Education when putting together offers.
10. Whilst less transferability is needed at GCSE, students would need to be prepared for A-level study and therefore the level 2 qualifications would remain similar to (even if not identical to) GCSEs.

A2.5 Assessment that is robust, valid and proportionate

11. The current examinations system is not fit for its main purpose (that is, to provide a structure that encourages schools to prepare students for the next stage in their education or work). It is used to assess schools' performance as well as students' ability (high stakes), there is a market in which it is in no-one's direct interest to maintain standards or quality, and the assessments are not testing the specifications.
12. We have concerns about the high stakes nature of examinations. They are being used as a performance measure for a school as well as preparation for the next stage of education. The proliferation of qualifications and the large burden of public examinations at 16 have come about because they are needed for school performance measures. As 14-19 education becomes more of a continuum, it is feasible that the large-scale use of public examinations at the age of 16 can be reduced: schools can use internal examinations to determine the best routes for students and guide them towards the next stage in their education.
13. We are very sympathetic towards the statement that "education must not be reduced to a process of 'teaching to the test'". This is certainly a concern at the moment because assessments do not encourage high quality teaching and learning. However, if the assessments were of a higher quality (ensuring that students have had an authentic and useful experience of the subject in order to successfully complete the assessment), then 'teaching to the test' becomes more attractive. In other words, it is the tests that are at fault, rather than the idea of teaching to them and the phrase might be "Education must not be reduced to a process of teaching to

low-quality tests". It would also help to promote a learning culture, which fosters a positive attitude towards learning rather than merely the achievement of qualifications.

14. We prefer the use of linear courses and examinations rather than modules, which have, over the years, encouraged the acquisition of small nuggets of knowledge rather than a deep, complete and coherent understanding of a subject. Therefore, it is important (particularly in the sciences) to have at least some synoptic assessment at the end of a two year course. In this way, students get a richer experience, a fuller picture of the subject and a deeper understanding because they are encouraged to assimilate and relate what they learnt in the first year to what they study in the second year.
15. Existing assessments do not assess what is in the specification. Therefore, even students with high grades are not prepared for the next stage in their career or education – despite the fact that the specifications suggest that they should be; and consequently, consumers of qualifications have lost confidence in the examinations system. This has come about because the five main awarding organisations which cover England, Wales and Northern Ireland are competing for market share on the basis of enabling more candidates to get higher grades rather than on the basis of high quality assessments or high quality curricula specifications. We advocate changes that include drivers for quality in the examinations system and bring an end to the 'race to the bottom'.
16. Through SCORE, we have set out the characteristics of an effective examinations system and these are included in section B 7.2.

A2.6 Engagement and motivation of all learners

17. It is teachers who engage students and it is high quality teaching and learning that motivates them. However, the system (including the examination system) must provide a structure in which high quality teaching and learning is valued and advantageous to both the students and to the school. As stated above, a combination of sometimes-trivial assessments and the high stakes nature of the results of those assessments have led to "teaching to a low-quality test". We would like to see the development of assessments and assessment items that can only be completed successfully if students have experienced high quality learning that authentically represents the subject.

A2.7 Access to qualifications through the medium of Welsh

18. To ensure equality of access, all 14-19 qualifications in Wales should be available to all students in both Welsh and English.

A2.8 Evidence-based and quality assured

19. We strongly support the principle that changes to qualifications and assessments are evidence-based. This would be helped by longer review periods and more stability in the system. The

current cycle of review (of 5 or 6 years) does not allow time to assess the effects on quality of learning and progression rates of any new qualification. Similarly, we would rather see evolution within qualifications rather than a revolution – or complete rewrite - every 5 or 6 years.

20. At A-level, there is discussion in England about national subject committees and we advocate the use of such committees to act as guardians of the subject. These committees might also have oversight of GCSEs and there is an argument to be made for them operating in Wales as well as England (whether or not the Welsh Government retains A-levels and GCSEs).
21. It is essential that, whatever body oversees the development and accreditation of specifications, they have access to some of the assessment material before it is used.
22. We do not see the need for multiple awarding organisations competing for candidates on every qualification. This is discussed in section B 7.2. It is not a way to ensure high-quality examinations. Recent experience suggests that it has the reverse effect (especially in combination with high stakes tests – see section B 6.1) – bringing about a ‘race to the bottom’.

A2.9 Stages rather than ages

23. The proposal to allow young people to take qualifications when they are ready rather than at a particular age has deep and long-lasting implications. We don’t feel that there is either enough evidence or enough analysis of the consequences to be able to comment usefully.

A2.10 Meeting the needs of Wales

24. One of the risks of divergence is as stated on page 14 in the consultation paper: “the risks include threats to the perception of qualifications achieved by learners in Wales”.
25. Another risk is that there will not be the same quantity (and possibly quality) of support materials available for qualifications that have diverged greatly from English qualifications.

A3.1 Welsh Baccalaureate qualification

26. The core of the Welsh Baccalaureate is currently worth 120 UCAS points. However, it is possible that the points-based system for university entry will be phased out. In which case, the Welsh Baccalaureate core would lose any value it previously had for entry to university.
27. The high success rate of candidates in the qualification (of which a part is internally assessed, with a sample being externally moderated) may give rise to concern about the credibility and the rigour of the core of the qualification. Following some work by the Welsh Institute of Social and Economic Research¹, it would be useful to investigate the academic success of students who have gained university places based on the 120 UCAS points from the Welsh Baccalaureate.
28. Where students are expected to take the Welsh Baccalaureate, there is a possibility that they spend less time on academic subjects – which they may have preferred or at which they may

¹ www.bbc.co.uk/news/uk-wales-18045621

have been more adept. There are only so many available learning hours in years 12 and 13 and students' opportunities or development should not be hindered by compulsory qualifications that may not serve them as well as a qualification that they would have chosen in its place. This is especially true if the UCAS points become less useful than a grade in an academic subject (see above).

29. The qualification might gain credibility if it is not compulsory and it has a grade associated with it rather than UCAS points.
30. Skills such as numeracy, ICT etc are better assessed within a relevant context rather than generically. We are aware of schools that have enterprise weeks or career weeks. There are many activities out there which some schools already use which not only provide enterprise and team-working opportunities but also tie in to subject content. A good example of this activity is the Ashfield Music Festival². This activity is also available in Welsh and has been mapped to some Essential Skills Wales criteria³.
31. The Welsh Baccalaureate is the only compulsory qualification in a number of schools. Any qualification will not suit the whole cohort and therefore making the qualification optional would allow pupils to choose their best combination of qualifications post-16.

A3.2 GCSEs

32. Whichever option the Board chooses, we have some views on the structure of the sciences at 14 to 16 (current GCSEs).
33. We support the removal of modular GCSE examinations and re-sits. Linear examinations will have a number of positive effects on teaching and learning in schools. They will free up more of the school year for teaching and enrichment rather than compelling teachers to fill too much of it with exam preparation, they will reduce the pressure of assessment within schools, and they will reduce the disjointed nature of current curricula, in which topics are taught in isolation without scope to appreciate the interconnectedness of ideas within and between the sciences. Together, these effects will allow teachers to develop more coherent, structured and complete teaching schemes that help their students develop a fuller understanding of topics before they sit an examination.
34. There remains a question about the role and structure of the GCSE in Science for students who are going to go on to take Additional or Additional Applied Science. In a sense, Science is a large

² Ashfield Music Festival is one day off-timetable activity in which students develop skills in enterprise and learn how physics applies in the context of setting up a music festival by taking on one of six roles: project manager, health and safety advisor, construction manager, electrical engineer, sound engineer or lighting engineer. They are supported by real-life scientists – referred to as “experts” – and must use a mixture of physics-based knowledge, creativity and skills associated with enterprise in order to win the contract to build the main stage. www.iop.org/education/teacher/extra_resources/ashfield/page_39512.html

³ Gwyl Gerddoriaeth Nantymynydd: www.iopwales.org/education/resources/ashfield/page_56302.html

module that gets taught before the second certificate (often in one year). Therefore it will retain some of the drawbacks of modules – a forced lack of coherence and unhelpful sequencing. We suggest that, as part of the de-modularisation of GCSEs, the purposes and structures of the different certificates and combinations in the sciences are re-examined.

A3.3 A-levels

35. A-levels are in need of reform. As previously stated, the assessments are not fit for purpose: they are not encouraging high quality teaching and learning and they are not preparing students for the next stage in their lives – most notably higher education.
36. We, and the SCORE organisations, have long been concerned about the grading severity of subjects. It is extremely important that this issue is addressed. There is strong evidence to suggest that candidates who take science subjects at A-level generally achieve lower grades in those subjects than comparable (or the same) candidates do in other subjects⁴. Whilst we recognise the difficulties inherent in enforcing comparability between subjects, the issue must be addressed with some urgency.
37. Assessment will always drive what will be taught and if there is to be confidence in the system, assessment must be fit for purpose: it should require and reward teaching that has authentically reflected the nature of the subject during the course as well as allowing students to demonstrate fairly their level of understanding. In April 2012 SCORE published evidence on the assessment of mathematics within science A-levels which concluded that several of the mathematical requirements in the specifications were assessed in a very limited way or in some cases not assessed at all⁵. We would therefore strongly recommend that whatever system is in place for A-level design it is also responsible, at a national level, for reviewing sample assessment material. Again, national subject committees would be able to facilitate this.
38. We believe that the best way to secure the appropriate expert input for A-level design would be with the formation of national subject committees. The national subject committees should have responsibility for overseeing the full range of activities associated with specification and assessment development; they should set the criteria that determine specification content, specify the nature and frequency of assessment, and approve the resulting specifications and (a sample of) assessment materials. Although the focus will be on A-levels, it is important to ensure that there is coherence between A-levels and preceding years, to avoid an unbridgeable gap as students move from one stage of education to the next. Membership of the national subject committees should be such that all those who use A-levels, whether for selection, quality assurance or certification purposes, can have confidence in them as a qualification. This would

⁴ *Relative difficulty of examinations in different subjects*, CEM Centre, July 2008.

<http://www.cemcentre.org/attachments/SCORE2008report.pdf>

⁵ *Mathematics within science 2010 examinations*, SCORE, April 2012.

<http://www.score-education.org/media/10033/score%20maths%20in%20science%20summary%20report.pdf>

mean a balance of representatives from higher education, industry, as well as the schools charged with delivering the content to students. Appointments should be made transparently, with regular turnover of membership.

39. Any reform of A-level will necessitate a reform at GCSE level. Qualifications at all stages are generally used as entry to further study and therefore any reform within one qualification will impact on qualifications either side. For example, reform of A-level will necessitate a reform at GCSE level, while impacting what is taught at degree level.

A3.4 Vocational qualifications

40. It is important that students – especially from the age of 16 – have access to vocational (or technical) pathways. The pathways will be strengthened if they are supported by high quality and well-regarded qualifications. These should be developed with the following principles in mind:

- There should be a clear understanding of what the qualification is measuring and being used for.
- Qualifications need a vision, purpose and a target audience.
- Qualifications should be capable of appropriate differentiation and have clearly defined levels.
- Qualifications are a currency and in order to be a strong currency, users need to have confidence in the qualifications.
- Vocational and academic qualifications should not be presented as opposite ends of a one-dimensional spectrum of ability.
- Qualifications need stability and changes should be evolutionary rather than revolutionary in order to develop confidence in the currency.

41. Other issues concerning vocational qualifications are discussed below.

Stakeholder engagement: Qualifications, especially vocational qualifications, should be developed in consultation with the full range of subject specialists, employment sectors and HEIs. Vocational qualifications must provide a pathway that develops a student's technical skills in a way that employers and/or HEIs will find useful.

Piloting of qualifications: We believe that any qualification development process needs to allow sufficient time for developing, piloting and evaluating the specification, its delivery and assessment.

Perception: Technical skill and academic ability are not opposite ends of the same spectrum. They are different dimensions and it is perfectly possible to have either one, both or neither. If the development of vocational qualifications does not take account of the lessons from history, mistakes are bound to be repeated, and the qualification destined to be unpopular

or of low status. There is a significant risk that non-academic (e.g. vocational) qualifications will be seen as a course for “less able” students.

Accountability: Many students are currently entered for a vocational qualification because they carry an equivalence for league tables which may be used by schools as an opportunity to improve their position in the league table. This is unsatisfactory and should be addressed partly by removing equivalences and partly by exploring more sophisticated methods in which to compare schools or achieve accountability.

Numbers: Identify the size of the cohort – this is likely to be small for level 2 science. With such a potentially small cohort at level 2, developers of vocational qualifications need to explore ways to make the qualification commercially attractive to an awarding organisation.

Identifying students: Students suitable for vocational qualifications will overlap with students who are currently successful at GCSE. As stressed earlier, vocational and academic qualifications sit on different dimensions not on opposite ends of a spectrum; one mark of a successful technical qualification is that students who have both technical and academic ability choose the technical pathway out of preference rather than by default.

Meeting learners’ needs: Science vocational qualifications should be aimed at learners aspiring to a particular science-related job or a relevant professional qualification pathway. It should focus on equipping learners with work-related skills, strong learning motivation and a career plan. The Information, Advice and Guidance (IAG) that students receive when choosing between particular qualification routes should be honest about the pathways that the qualification closes off as well as the pathways that remain an option. This is particularly important for qualifications that are ‘about’ science, rather than covering science content.

Progression: There should be clear progression options between individual qualifications, such as those established routes from GCSE to A-level, and these should also allow for movement between levels and between vocations. However, progression from 14-16 to 16-19 relies on local, not national, availability. This issue is highlighted very clearly in traditional qualifications such as GCSE science, where A-level physics is not available in about 500 schools and colleges in England⁶. Similarly, many existing vocational and applied science level 2 qualifications do have follow-on level 3 qualifications, but these are often not available to students. The level 2 qualifications then essentially become dead ends, with no progression possible. Hence mechanisms to ensure local provision of a sequence of qualifications are important.

⁶ *Physics and teacher numbers*, Institute of Physics, September 2010.
http://www.iop.org/news/10/sep10/file_44832.pdf

A3.6 STEM subjects

42. Science is currently a core subject up to the age of 16. Some schools are already placing a greater emphasis on the sciences by offering the three separate sciences. So there does not seem to be a need to move towards even 'greater emphasis' through the qualification system. It would, however, be a useful exercise to examine the purposes of the different routes to 16.
43. At A-level, the main concern is about grading severity of the science subjects (see section 3.3).
44. We would like to see all students up to 19 continuing to study some form of mathematics. It must however be appropriate to the study programme and meet the needs for each group/type of student going through 16-19 education. The maths programmes should be made up of appropriate content in relevant contexts (for each type of learner) and should be a sensible size and be set at the right level.

A3.7 Communication campaign

45. All changes will need a major communication campaign for Welsh schools, employers and universities and also for the same stakeholders across the UK. This clearly has time and finance implications.
46. If any changes are made to A-levels it is essential that Welsh students are not disadvantaged when applying to universities. Changes should be clearly communicated to universities and to organisations such as learned societies who sometimes provide access to a one-stop shop for all degree courses in a particular subject.
47. The benefit of keeping options open should be clearly communicated to school pupils. Choosing certain subjects at A-level severely limits the choice of subject and location at university. The Russell Group universities produced a document, *Informed Choices*⁷, which "includes advice on the best subject combinations for a wide range of university courses as well as advice on the best choices if you don't know what you want to study after school and need to keep your options open." This type of advice needs to be available to all pupils, teachers, careers advisers and parents.

Part B: Technical and specialist issues

B2.2 Coherent programme of learning at 16-19

48. We would like to see more work done on the implications of the provision of coherent study programmes.
49. We support the notion of the provision of mathematics in a way that coherently supports other subjects post-16.

⁷ Informed Choices www.russellgroup.ac.uk/informed-choices.aspx

50. In particular, we would support a study programme explicitly linking mathematics and the sciences at 16-19 and that promotes coherent teaching across the two subjects. There is much evidence to suggest the current study programmes are not adequately preparing learners with the knowledge and understanding of mathematics, particularly within the context of the sciences, to progress into STEM Higher Education or STEM related work. A recent report from the Institute of Physics showed that physics and mathematics A-levels are not sufficiently preparing learners for undergraduate courses in physics and engineering⁸. Within the biosciences a recent report highlighted that many students enter biosciences degrees with a very wide variety of mathematics qualifications, causing difficulty in designing appropriate courses⁹. Preliminary findings from SCORE also show that existing science A-level examinations do not meet the needs of students in terms of the way they assess the mathematical and analytical nature of science.

B3 Simplification

B3.2 Development and approval of new qualifications

51. The extent to which universities and employers play a role in the development of qualifications will depend on the qualification. For A-levels, the best route for both sets of stakeholders to play a role is through national subject committees.

B5.2 Assessment issues for GCSEs

52. As discussed in section A 3.2, we would prefer to see linear GCSEs.

53. We would like to see the development of more effective ways of assessing practical work both in and outside of the classroom (and its use in teaching and learning) up to the age of 16. Controlled assessments have not worked. They have contributed to the limited scope and breadth of practical work. This is because practical tasks set by awarding organisations in controlled assessments must meet the following requirements; be deliverable within a 30-60 minute slot; 100% reliable; deliver results for every student; be prepared by a technician quickly; and use equipment available in every school in the country.

Question B5.5 Assessment in A-levels

54. We strongly support retaining the AS qualification for a number of reasons; it provides an indication to higher education institutions on student performance which helps facilitate the admissions process; it allow students to study a wide breadth of subjects which both encourages students to study subjects they might not wish to take to full A-level (a particular issue for science subjects which are often regarded as harder than others) and facilitates informed

⁸ *Mind the Gap*, Institute of Physics, July 2011 http://www.iop.org/publications/iop/2011/file_51933.pdf

⁹ *A survey of the mathematics landscape within bioscience undergraduate and postgraduate UK higher education*, Dr Jenny Koenig, June 2011
http://www.bioscience.heacademy.ac.uk/ftp/reports/biomaths_landscape.pdf

decision-making on progression options; and allows students studying science A-levels to take some form of mathematics or non-STEM subjects for breadth post-16.

55. As well as being available as a discrete qualification in its own right, the AS level should also remain as a component of the A-level. However, it should have a lower weighting than the A2 components. This is to recognise the fact that the AS represents the level of performance expected by the end of the first year of study, while the A2 reflects the fact that students have acquired a deeper learning and understanding in the subject after a further year of study. We would advise 40:60 weighting for AS and A2 qualifications. Furthermore the A2 component should assess the full two years of study and embrace a synoptic character so that students are encouraged to learn the subject holistically rather than compartmentalise modules.
56. We would therefore not be in favour of returning to a two-year linear course and removing the assessment at the end of the first year of the A-level course. It is important for students to have an indication of their progress, and for that achievement to be recognised in the final qualification.
57. We agree that the option of numerous re-sits has had a negative effect on the A-level qualification: students do not always treat the exam seriously if they know they have the opportunity to re-sit; it encourages teaching to the test; offers perverse incentives for teachers to focus on accountability measures; and it can significantly reduce the amount of teaching time. We would therefore support the removal of January assessments and move to a system where assessment occurs once a year during the summer term.
58. While continuous re-sitting should be eliminated, students should have the option to re-sit each assessment component once. However, to avoid students (and teachers) opting to re-sit to try and increase their mark (and improve school performance), we would encourage the most recent mark (rather than the highest of the two marks if the retake results in a lower mark) to count towards the final A-level grade.

B6.1 School performance measures

59. We recommend the following principles on qualifications for 14-19 year olds and performance tables:
 - a. The Board should consider the unintended consequences of any performance measure it introduces and, in particular, the impact it may have on the range and quality of qualifications on offer to students.
 - b. A school should be required to report on what it is trying to achieve. It should be able to offer a range of qualifications appropriate to the needs of its students, regardless of whether a qualification features in a performance table.

c. A performance measure that tries to serve too many purposes is unhelpful and could run the risk of leading to perverse incentives. Performance tables should be an accountability measure for the protection of standards, to be used by schools, students, parents and local communities, as well as the Department for Education.

d. Arbitrary criteria used to define whether a qualification features in the performance table should not be a proxy for what constitutes a 'good' qualification. Such a message may encourage valuable qualifications, not included in the performance table, to change arbitrarily in an attempt to meet the criteria.

60. We support the inclusion of progression and destination data into performance measures, providing the publication of this information is timely and the impacts (intended and unintended) are thoroughly considered before introducing the measure. If used correctly, these performance measures will encourage providers to offer study programmes that have real progression opportunities for their learners and that can positively influence planning and teaching.

B6.4 Comparison of performance with England

61. It is important to consider comparisons with all countries in the UK, not just England.

B7.2 The marketplace for qualifications

62. The current examinations system is not fit for purpose.

63. Whilst we recognise the potential merits of multiple AOs (it spreads risk in the system, reduces the extent to which qualifications are under direct political control, presents diversity in qualifications, and potentially keeps costs down) the current model in which the AOs operate in England, Northern Ireland and Wales is not effective and we strongly believe that it jeopardises the needs of the learner, the consumer (HEIs and employers) and the country, by not assessing the specifications and thereby reducing the demand of what is taught.

64. We see NO advantages of providing the same qualification for a given subject, in competition, by multiple AOs. Although there are a number of risks, we would favour a model in which competition is not for market share within a qualification.

65. It is worth considering the features of an effective examination system. It should:

Set and maintain standards – Assessment results should be comparable as far as is reasonably possible from year to year in order to maintain confidence in the system (the results being the public face of the summer examinations).

Produce fair and effective assessment tools – The assessment tools must effectively measure a learner's ability in a subject. They must also be designed to differentiate fairly and reliably between the excellent, good and weak candidates.

Engender high quality teaching and learning – There will always be an intrinsic link between assessment and the teaching and learning of a subject. Assessment must therefore test all levels of Bloom’s taxonomy¹⁰ to encourage high quality teaching and learning.

Authentically represent the subject being assessed – Specifications and assessment should not lose the character and ethos of a subject in the practicalities of setting and marking assessments.

Encourage and allow for progression – Learners obtaining any qualification should be equipped with the necessary subject knowledge and skills to progress to the next relevant level in that subject.

Embrace subject expertise – The two previous points emphasise the need for the development of specifications and assessments to be carried out, supported and regulated by people with expertise in that subject.

Be transparent – The roles and responsibilities of any AO, the regulator and the subject communities must be clearly defined and transparent. In addition, *all* AOs with responsibility for administering 15–19 examinations should be obliged to publish or otherwise make available anonymised, subject-based data on examination participation and performance in all national qualifications. This information would allow reliable assessment of how the examinations system in Wales is performing¹¹.

Support innovation – The examinations system should be responsive to and engaged in educational research to support suitably evidence-informed innovations in assessment, curriculum and pedagogy.

Ensure comparability between subjects – A system must be committed to achieving parity of standards across subjects and specifications. Where this is not possible the system must be transparent and suitably acknowledge a lack of parity.

66. The current system, in which awarding organisations compete for market share in each qualification, falls short on almost every point set out above, many of which are interrelated. The current system has obvious overlap with England and is looked at in more detail in SCORE’s response to the Education Select Committee¹².

67. The response above also suggests alternative models for exams in England.

¹⁰ Bloom's Taxonomy is a hierarchy of learning objectives for education: the lower levels include recall, comprehension, application and the higher levels include analysis, synthesis and evaluation. Learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels, creating a deeper and more holistic form of learning.

¹¹ *State of the Nation: Science and mathematics education 14-19*, Royal Society, October 2008

http://www.iop.org/publications/iop/2011/file_51933.pdf

¹² *How Should Examinations for 15-19 Year olds in England be Run? A response to the Education Select Committee Inquiry*, SCORE, November 2011

<http://score-education.org/media/9364/ed%20select%20exams.pdf>

B7.3 Regulations and quality assurance.

68. We think that there is a need to monitor the quality of examinations papers as well as their accuracy. The poor quality of assessment items degrades the curriculum through wash-back. Increasingly, assessments tend to be in the form of written examinations with items that test what is easy to assess. They concentrate on the lower level domains in Bloom's taxonomy: recall, comprehension and application. Consequently, there is an over-emphasis on these skills in the way the subject is taught. This has a damaging effect on the learner experience because teachers will tend to emphasise the content and techniques that they know are likely to come up in examinations.
69. Too often the regulator acts as a 'crash scene investigator' rather than an 'air traffic controller'. The regulator should be responsible for preventing problems arising with examinations in the first place and it can only accredit specifications by taking into account the accompanying assessment tools.
70. We therefore call for there to be a formal requirement of the regulator to review assessment prior to use. The regulator should undertake this review with an expert panel comprising of subject and assessment expertise. Professional bodies and subject associations should be involved in the process – either through direct involvement or through proposing members of subject review panels. This would ensure the appropriate level of demand is demonstrated in all assessment materials and that there is a comparable standard of assessment across equivalent qualifications.
71. We are very concerned about the management of conflicts of interest between awarding functions and any other activities awarding organisations and their related companies undertake. Good specifications should support effective teaching, learning and assessment, without being influenced or constrained by commercial interests and/or connected activities. If awarding organisations provide seminars, it is essential that they are to improve teaching and learning rather than be an additional commercial activity for the organisation.